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March 5, 1999
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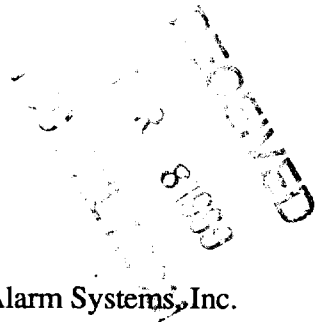

94-102

Federal Communications Commission
Secretary of the Commission, Room 202
1919 M. Street, N.W.
Washington, D.C. 20554

Re: Petition and Comments by Zoltar Satellite Alarm Systems, Inc.

To The Secretary of the Commission:

Enclosed please find a Petition and Comments, one original and nine copies by Zoltar Satellite Alarm Systems, Inc. for your consideration.

If you have any questions please do not hesitate to contact this office.

Very truly yours,

RON SCHLAGER

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BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter Of	)	
	)	
Revision of the Commission's Rules	)	CC Docket No. 94-102
To Ensure Compatibility with	)	RM-8143
Enhanced 911 Emergency Calling Systems	)	
	)	
Request for Waivers of Section	)	DA 98-2631
20.18(e) of the Commission Rules	)	

To: The Commission
Wireless Telecommunications Bureau

PETITION AND COMMENTS REGARDING
E-911 RULEMAKING AND WAIVERS

Respectfully submitted,

ZOLTAR SATELLITE ALARM SYSTEMS

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EXHIBITS

ITEM NO.	DESCRIPTION
1.	Excerpt from FCC 96-264 ppg. 42-44
2.	Garmin® and Protection One® news release
3.	IDC news release
4.	Hughes Network Systems news release
5.	SiRF Technology news release
6.	Boeing advertisement
7.	Tendler Cellular web release
8.	Snaptrack web release
9.	Phillips Publishing, "Companies Jumping At GPS Wireless Market Opportunities For Personal Location E-911," NewsEdge Corporation, October 7, 1998.

A. INTRODUCTION:

Zoltar Satellite Alarm Systems (hereinafter referred to as "Zoltar") is submitting this petition and comments pursuant to the Public Notice issued by the Wireless Telecommunication Bureau on December 24, 1998, identifying how waivers will be granted to carriers who choose to consider a handset based approach to the implementation of Phase II Automatic Location Identification ("ALI") requirements pursuant to 20.18(e) of the Commission's E-911 regulations.

Zoltar (has been awarded two U.S. patents and an international patent from Australia, regarding the integration of global positioning systems ("GPS") and wireless communication devices for use in personal safety and security. Zoltar has several other international patents pending on the same technology. One of the more significant claims under the patent is the integration of GPS technology with electronic sensors and wireless phones to create a personal alarm system. Zoltar was recently honored with the "Best New Electronic Device Award for 1998" in a nationwide competition sponsored by Hammacher Schlemmer.

As the development of this technology is in its infancy, and the capital investment requirement for carriers to meet the Commission's requirements are significant, Zoltar applauds the Commission's desire to remain "technology and competitively neutral" as the E-911 regulations are implemented. In order for the Commission to reach that goal, Zoltar believes the guidance regarding the "show [of] special circumstances warranting a deviation from the general rule," [where] "such deviation will serve the public interest" [1] should be *liberally construed* so that the best technological solution can be chosen to justify the

capital investment the carriers must make to comply with the Commission's current regulations.

The purpose of this petition and comments is to identify how this regulatory goal can be served while promoting the Commission's desire to remain "technology and competitively neutral." This petition and comments will also address advances in GPS technology and products and address how the application of regulations **to *new phones only***, and the ***utilization of waivers*** accomplishes the Commission's goals, addresses the concerns of carrier's committed to the technology and results in an end product that promotes public safety and welfare.

B. REGULATORY OVERVIEW AND REGULATORY GOALS

1. OVERVIEW

The *E 911 First Report and Order* required that covered wireless carriers deploy Automatic Location Identification as part of enhanced 911 service beginning October 1, 2001.

Section 20.18(e) of the Commission Rules required subject carriers to provide the location of all 911 calls by longitude and latitude with an accuracy of 125 meters or less utilizing a root mean square methodology.

The December 1997 E 911 Reconsideration Order noted that the effect of Section 20.18(e) might not be technologically and competitively neutral for some technologies that provide Automatic Location Identification, (ALI) in particular the handset-based technologies such as those using the GPS satellite system.

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[1] *See* WAIT Radio v. FCC 418 F.2d 1153 (D.C.Cir.1969)

The Commission stated its willingness to consider how to remain technologically and competitively neutral either in E911 rulemaking or in response to request for waivers.

The December 24, 1998 Public Notice from the Federal Communications Commission set forth guidelines in response to inquiries received by the Wireless Telecommunications Bureau regarding how waivers might be granted.

The handset based technologies sought to have the regulation apply to new handsets or handsets upgraded to support the chosen technology. The Commission noted that a retrofit for all existing handsets may not be possible or economically feasible for carriers. The Commission expressed its willingness to consider proposals to phase in implementation, especially to the extent a proposal helps achieve further improvements in ALI capabilities. The Commission also indicated that it might consider applying the Phase II requirements only to new wireless phones.

The Commission is seeking to develop a method by which they accept or reject petitions for waivers. Zoltar advocates a liberal application of 20.18(e) that will allow all parties to evaluate all the technologies before the rule is enforced. If a carrier is implementing an ALI service based in a handset solution it should be allowed additional time to phase out older handsets. The public's desire to take advantage of the ever increasing and enhanced cellular service when combined with the decreasing cost of cellular handsets will prove to be the catalyst that will provide a more rapid deployment of a hand based ALI solution.

2. **REGULATORY GOALS**: In the best interests of the public safety and security the Commission has taken the position that it is necessary to develop and implement a nationwide wireless 911 and E911 system. The The Commissions goals include the following:

(1) The intention to adopt general performance criteria rather than extensive technical standards;

(2) the intention to guide the development of wireless E911 services;

(3) the intention to ensure rapid, efficient and effective deployment of ALI;

(4) the intention to promote public safety and welfare; and,

(5) the intention to ensure the commitment of carriers to provide a high level of accuracy.

The Commission's belief is that any request for waivers must be accompanied with a showing of how the proposed waiver will promote and further the Commissions' goals. Those who seek waivers must also demonstrate their commitment to and plans for achieving the goals of Section 20.18(e)
A concern linked to handset-based ALI technologies is whether handset technologies will be able to provide reliable service to "roamer" customers whose home carrier adopts a network based solution and may not include equipment or software needed for the carriers handset-based ALI approach. The Commission seeks the identification of steps that carriers will take to minimize the "roamer" problem.

Pursuant to its general waiver standards the Commission has requested that those seeking a waiver provide information in the following areas:

(1) The level of ALI accuracy and reliability the carrier plans to offer and its effectiveness in various geological environments;

(2) The time frame within which the carrier plans to start offering ALI capable handsets to customers, including timetables and milestones and any information on the rate at which non-ALI capable handsets would be replaced or upgraded;

(3) The steps a carrier will take to minimize problems associated with non-ALI capable handsets, including estimated costs for upgrading or replacing existing handsets; and,

(4) The steps a carrier will take to address the "roamer" situation.

3. ACTION REQUESTED:

Zoltar is requesting that the Commission maintain its stance on technological neutrality as it views any new and/or existing regulatory policy. Zoltar believes that a technologically neutral approach is best achieved through a liberal construction of its policy through the granting of ***waivers*** and/or its application to ***new handsets only***. This liberal regulatory philosophy will allow implementation of a GPS solution in the same manner as the commission took in the network solution and with respect to rural carriers.

C. STATEMENT OF GROUNDS AND SUPPORT OF THIS REQUEST

1. The Use Of Waivers, And Application Of Regulations To New Cell Phones Will Help Ensure Rapid, Efficient Deployment, And That In Turn Will Promote Public Interest

Wireless carriers are public utilities which provide broad coverage and a wide range of cellular services to its customers. Any expansion of services requires that an adequate technology be chosen, tested and evaluated to ensure that reliable service can be provided and that the Commissions regulations can be complied with. It is compliance with the Commissions regulations in reliable service which best serves the public interest. In a review of the initial petitions submitted by the carriers to the Commission time deadlines and costs for implementation were two main concerns regarding the Commissions' policy.

Ameritech was concerned that the FCC implicitly placed the burden of recovering costs only on the covered carriers.

AT&T was concerned over the lack of a recovery mechanism to recover the cost of equipment upgrades.

Nokia Telecommunications Inc. was concerned, amongst other things, with a time deadline that imposed 67% accuracy within 5 years given the various environmental conditions and differing technologies.

PCIA addressed in part (1) the compatibility time deadline; and, (2) the funding mechanisms which required the wireless carriers to assume large capital expenditures without a timeframe for reimbursement.

Personal Communications LP addressed, amongst other things, (1) the lack of a viable cost recovery mechanism; and, (2) the equitable distribution of shared costs

and the manner, method and time frame for reimbursement where large infrastructure upgrades are warranted.

Telecommunications Industry Association was concerned with the technical limitations and ability to timely meet the requirements set forth.

XYPONT Corporation advocated, amongst other things, that the revenue to support the wireless 911 system will come from the subscribers.

The public interest is not served if the carrier cannot implement a proper technology to achieve the Commission's regulatory goals. The issuance of waivers and/or application of the regulations to new handsets will assist carriers who are committed to selecting the most reliable technology. The U.S. military, which has had unlimited funds and has the ability to study the competitive technologies over a long period of time has determined that the GPS technology provides the best technology and most reliable technology for ALI location. A liberal construction of the Commissions regulatory policy will provide the carriers time to structure and amortize the capital costs, address the "roaming" issue and provide a technology which best meets the Commissions desire for public safety.

2. Creating the Best Possible E-911 System Best Promotes Public Safety

The regulatory goal of the Commission is to create the best possible E-911 System possible. There is a precedent for the use of regulatory waivers as a mechanism to accomplish the development of the "best" solution. The Commission has already used a liberal policy in the telecommunications industry. When it became clear that network- based solutions could not provide

locations for satellite based telephones and marine based 911 calls, the Commission granted waivers.

The Commission utilized its technologically neutral stance to accommodate the network based solution when it was clear there were inherent flaws in triangulation from multiple cell sites. Consistent with prior Commission actions and in accordance with the stated objective to remain technologically neutral, the Commission should apply the same liberal regulatory policy to the GPS solution that it did with the network solution, for 220 MHz licensees, and for rural carriers. [2] (*See* **Exhibit "1"**, p. 42 para. 82 and p. 43 para. 84 of FCC 96-264) It is respectfully submitted that waivers are appropriate once again, this time with respect to the GPS based solution. By fostering the various technologies the Commission may help ensure a rapid deployment of ALI.

3. The Phasing In Of Regulatory Changes Serves The Public Interest

The phasing in of regulatory changes serves the public economically and allows for expeditious implementation. In the past, FCC rule making regarding wireless phones has been applied to *new handsets made after the effective date of*

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[2] ***See* FCC 96-264 page 42, para. 82** which provides: [W]e will not require 220 MHz licensees to provide E911. We note, however, that the 220 MHz service is in its infancy and still evolving. ***Also see*, FCC 96-264 page 43, para. 84** which provides: "As stated above we have found E911 service to be in the public interest. We agree that there may be exceptional circumstances where deployment of E911 may not be technically or economically feasible within the five-year general deadline. We believe that these cases can be dealt with through individual waivers. In cases where the cost recovery mechanisms for E911 service uniquely disadvantage a particular carrier, we will also consider waiver requests. . . . Moreover, to the extent that, in any rural area, no PSAP Administrator has informed the carrier that the PSAP is capable of receiving and utilizing the data elements associated with the service, the rural carrier will not be obligated to provide E911.

the regulation. By analogy, when the FCC required an electronic change, requiring that cell phones select between band A and band B for the purposes of selecting the strongest channel to transmit a 911 call, the rule was applied to *new handsets only* made after the date of the rule.[3] Phased in controls have been utilized in other areas involving technological advances including pollution control, airbags and computer upgrades and compatibility.[4] Both methods proposed by the FCC, the application of the December 1997 E 911 Reconsideration Order to new technology and the request for waivers allowing for the approach of phasing in of the new technology, appear consistent with prior Commission policy.

4. GPS Provides Economic Advantages That Best Serve The Public Interest

The Commission has already stated its intent to remain technologically neutral and to allow the market to decide which is the best technology. The Commission's regulatory policy can best encourage suitable market solutions by the liberal use of waivers and phase-in of regulatory changes. However, that being said, there may be certain economic advantages in certain technologies. Having individual carriers develop their own unique network solution when a compatible global solution is available for free is wasteful. The commercial

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[3] 59 Fed.Register 54878 (1994)

[4] Other areas in which prospective application of a rule applied include air pollution standards from new motor vehicles and new motors fr06jn97R(access gpo.gov) ; passenger equipment safety standards fr23se97P(access gpo.gov), lifesaving equipment fr20my96R(access gpo.gov), Terrestrial microwave fixed radio services fr28my96R(access gpo.gov), telephone number portability fr25jy96R(access gpo.gov), standard design certification for the system 80 + design fr21my97R(access gpo.gov).

infrastructure for GPS is already in place. Commercial satellites utilize the same technology as military satellites. Building terrestrial locating networks when GPS can be shown to be more reliable and accurate and less expensive is not in the public's interest nor consistent with the Commissions goal for rapid, efficient and effective deployment of ALI.

5. A More Rapid Deployment Of The GPS System Will Occur As Technology Is Enhanced And As Costs Fall And That Is In The Public Interest

The applications and opportunities of GPS are growing while the cost and size of the technology is falling. Highly integrated chipsets which offer personal location/communication based features in small next-generation portable products is *already here* and is being integrated into new satellite phones. A description of products currently on the market and a description of comparable competitive GPS technology currently available includes, but is not limited to the following:

(1) **Garmin®** and **Protection One®** announced on January 11,1999, the introduction of a portable, wireless phone that includes a navigational screen and a button that directly links up to response specialists who can identify the existence of a caller, route the emergency call to the correct emergency response agency and maintain direct voice contact with the caller until help arrives It can also contact other people the caller wants notified in an emergency situation. (Protection One News Release); (*See* **Exhibit "2"**)

(2) **IDC** (Integrated Data Communications) in Bainbridge Island, WA, has issued a press release stating the their proprietary enhancements have

allowed IDC to provide location information to well within the FCC requirement. First trials produced 100% of cellular phones tested being found within 125 meters 92% of the time for emergency situations and the technology and improving. IDC states its technology can be integrated into new cellular phones or retrofitted into the battery packs of existing units. *See* **Exhibit "3")**

(3) **Hughes Network Systems, a Division of General Motors' Hughes Electronics,** is incorporating a recently introduced chip by **Motorola** (MRFIC1504) that is less costly, smaller and able to utilize Motorola's ultra low power, low cost embedded microprocessor architecture. (Business Wire October 20, 1998); (*See* **Exhibit "4")**

(4) **SiRF Technology** has developed a GPS module (SiRFstar) and has made deals with **Nokia** and **Ericsson** to include these modules in cell phones. (Business. October 1998); (*See* **Exhibit "5")**

(5) The military considers and utilizes GPS as its tool in procedures that require high level accuracy. **Boeing** is marketing to the military a combat survivor evader locator that provides two way messaging. (*See* **Exhibit "6")**

(6) **Tendler Cellular** with its voice synthesized message is currently on the market. **Tendler** FoneFinder system is instantly implementable with the provision of the cellular, universal in coverage, and can be made available by carriers at the cost of a normal cell phone plus $4 per month and a three year no cut contract. (*See* **Exhibit "7")**

(7) **Snaptrack** has developed and performed audited trials on a cellular assisted GPS based handset approach and has announced its results exceed the mandate. (*See* **Exhibit "8")**

The foregoing partial list signifies a commitment by a number of manufacturers and carriers to the GPS solution. These products confirm the accuracy and reliability of the GPS solution. The market has established competitive costs currently associated with the GPS solution. Looking to the military experience, it was their solution of choice because GPS provided the best coverage and most practical method of individual location. In the civilian market a commitment of this magnitude justifies a deviation from the general rule in the form of waivers because GPS will serve the public interest in enhanced public safety.

D. ECONOMIC IMPACT

The goal of the Commission is, in part, to provide a uniform, nationwide system capable of locating the caller utilizing altitude, longitude and latitude and should be to assist carriers committed to meeting the Congressional mandate.

A consumer driven GPS system, revised to encompass only *new phones* or which allowed for *waivers* or both would provide the most economical use of resources in meeting the compliance goals while providing the accuracy and broad application of E-911 which the Commission seeks.

1. Cost and Price To Industry

The industry should be encouraged to focus on long term investment and infrastructure rather than on short term retrofitting of an existing cell system

which is becoming obsolete with the advent of digital technology. The digital market expects annual sales of new cell phones to be in the millions.[5]

The cost of the network build out solution is estimated to run several billion dollars. Wireless carriers are concerned about their ability to finance the infrastructure and are concerned about the viability of the proposed mechanism through which their investment will be recovered. In addition to build out costs there are likely to be huge legal costs and long delays as well as many communities have declared a moratorium on the construction of cell site antennas in their backyard.

Conversely, the cost of the GPS solution is diminished because part of the infrastructure is in place. GPS does not require further local infrastructure changes and the cost could at least be shared with consumers when upgrading their cell phones or purchasing services bundles which include E911 thereby easing the economic impact of implementation on the wireless providers.

2. Economic and Employee Productivity

It would be *counter productive* to require a retrofit on some 40 million cell phones utilizing a two-dimensional land based system incorporating a technology that is giving way to digital. Like computers, the cell phones are disposable, often abandoned for better and cheaper technology. It would be redundant to require retrofitting to phones which the industry is already replacing as services and features are enhanced.[6] It is anticipated that employee

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[5] Tom McHale, "Digital Market Up--Digital Handset Sales In U.S. Increase 73%", **Electronic Buyer News**, March 10, 1997 pp. 31.

[6] Phillips Publishing Inc., "Companies Jumping At GPS-Wireless Market Opportunities for Personal Location, E-911", **NewsEdge Corporation**, October 7, 1998. "GPS integration into wireless

productivity will remain the same as employees are retrained to deal with the new technology.

3. Competition

Carriers will have to independently provide the Commission with their own timetables and milestones and the rate at which non-ALI handsets would be replaced and will have to address the issue of "roaming."

Applying the 1997 E-911 *Reconsideration Order* to *new handsets only* and the utilization of *waivers* will encourage faster evolution of technological enhancements. This will foster competition as carriers will seek to improve market share by offering competing bundles of services, which will incorporate E-911. Technology is advancing, the size and costs of chips and microprocessors is decreasing. The net cost of the handset to the consumer should diminish or should remain at present levels with today's high end cell phones. The exception is that these enhanced cell phones will contain GPS technology. There is also harmony in the marketplace because *security* and *safety*, the marketing tool for the carrier, is also the objective of both the consumer and the Commission.

4. Effect On Market Supplies

The market has already indicated an ability to manufacture and supply the necessary handsets.[7] The technology to supply the full location information as required by the *Report and Order* is already available.[8]

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wireless phones is such a hot topic now that Tom Engibous, president , chairman and CEO of Texas Instruments said that in 'two years, every digital cellular phone sold will have a [GPS receiver].' (*See* **Exhibit "9"**)

[7] Tom McHale, "Digital Market Up--Digital Handset Sales In U.S. Increase 73%", **Electronic Buyer News**, March 10, 1997, pp. 31.

5. Employment

Enforcement of the 1997 E-911 *Reconsideration Order* is likely to enhance employment in the new sectors advanced to incorporate the new technology. Burgeoning markets for wireless telephones will create new jobs among carriers and manufacturers of smart terminals. As terminals come to resemble pocket computers, new uses will create new markets. It is anticipated that current personnel will be retrained.

6. Effect of Energy Supplies

The implementation of the 1997 E-911 *Reconsideration Order* on new cellular phones and the utilization of waivers, will lead to earlier compliance because the technology already exists. GPS was designed specifically for locating. Handset based GPS takes less time to acquire a first fix, consumes less power and is more economical.[9]

E. ENVIRONMENTAL IMPACT

By choosing a handset solution the environmental impact of Commission's regulation is minimized. To achieve national coverage via a network solution could require the construction of as many as 100,000 new cell site towers.

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[8] Ira Brodsky, "FCC Emergency 911 Mandate: Is It Security Or Is It Surveillance" **RCR**, September 1, 1997.

[9] Ira Brodsky, "FCC Emergency 911 Mandate: Is It Security Or Is It Surveillance" **RCR**, September 1, 1997.

F. CONCLUSION

"The American people deserve a regulatory system that works for them, . . . a regulatory system that protects and improves their health, safety, environment, and well being and improves the performance of the economy without imposing unacceptable and unreasonable costs on society."[10]

By basing its regulatory policy on the premise that any adopted policy should be "technology and competitively neutral," the Commission can preserve the freedom of the wireless carriers to choose the best technology. By the *liberal* construction of waivers and the enforcement of 20.18(e) on new handsets only, the Commission can preserve the competitiveness of the market, which is in the public interest, while promoting a national E-911 system that meets its implementation targets and that is in the best interest of the public health and safety.

ZOLTAR SATELLITE ALARM SYSTEMS

DATED: March 3, 1999

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[10] Executive Order, 12866 September 30, 1993

EXHIBIT "1"

to invoke the Advisory Committee mechanism at the same time, especially since doing so could risk delaying the implementation process.

75. Based on the analysis above, we conclude that we can rely on the parties to proceed with this task in good faith. Therefore, we leave the resolution of a number of technical decisions and issues necessary for implementing our decision for the parties, including service providers, public safety organizations, equipment manufacturers, standard-setting groups, and state and local governments. We intend to remain actively involved, however, and will provide whatever assistance our resources permit. In that connection, we shall require the signatories to the Consensus Agreement, PCIA, and Alliance to furnish the Commission with joint reports detailing the status of the discussions, what decisions have been made, and what can be done to expedite the resolution of the issues. Such reports must be filed not later than 30 days following the end of each annual period after the effective date of the rules adopted in this proceeding.

76. We want to emphasize the importance of some of the particulars involved in providing wireless E911 services. Our decisions here, however, are consistent with our intentions as expressed in the *Notice* that we would adopt general performance criteria, rather than extensive technical standards, to guide the development of wireless 911 services. By setting forth a schedule for implementation of wireless E911 services, we are providing a time frame by which these unspecified parameters and standards must be established or resolved by the various parties involved. In view of the representations of CTIA in its reply comments on the Consensus Agreement, we believe that some of the tasks to be performed by the standard-setting group should be completed before the end of this calendar year.[137] Should we find that the parties are not maintaining their efforts to resolve these issues in good faith, we may take such actions as we believe to be necessary to implement E911 service without undue delay.

2. Carriers and Services Required To Offer E911

a. Background and Pleadings

77. In the *Notice*, we tentatively decided to require E911 service to be applicable to systems providing CMRS real time voice services using the public switched network. This would include cellular and broadband PCS, but not private mobile radio services. We asked for comment on this issue, including whether one-way paging or non-voice, non-geostationary mobile satellite service should be subject to this requirement, and whether private services not

[137] CTIA (CA) Reply Comments at 12, n. 26.

available to the public or not interconnected with the public switched network should be included.[138]

78. Most of the wireless industry supported exemption for certain CMRS licensees, particularly site-specific SMR services due to their limited interconnection with the public switched network.[139] Some PCS and cellular providers contended that E911 access should be extended to all CMRS providers of voice service.[140] MSS carriers generally opposed the application of E911 requirements to them on the grounds that their service is international rather than local, that it would be difficult to route a call to the nearest PSAP, and that it would require the costly and inconvenient adaptation of handsets.[141] On the other hand, ICSAR argued that E911 provision by mobile satellite carriers could be valuable in saving lives, although ISCAR conceded that major technical challenges still exist before mobile satellite services could provide E911 access.[142] Rural cellular providers argued that they should be exempted from E911 requirements because of the high expense in low density markets, as well as the lack of PSAP capabilities in such markets.[143]

79. In their comments on the Consensus Agreement, many commenters repeat their arguments in favor of exemption from E911 requirements.[144] RCA argues that there are many problems in implementing location technologies in rural areas, *e.g.*, cell site service areas do not necessarily correspond with PSAP service areas, and triangulation techniques cannot be performed in many rural systems. Therefore, RCA urges that cellular carriers serving rural jurisdictions must be afforded a reasonable implementation time after the PSAP has deployed the technology to receive E911 information.[145] On the other hand, ICSAR argues that MSS carriers should be required to implement E911 because of the potential to save persons not

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[138] *Notice*, 9 FCC Rcd at 6177 (para. 38).

[139] *See, e.g.*, PCIA Comments at 6; AMTA Comments at 4-7; Nextel Reply Comments at 3.

[140] *See e.g.*, Sprint Comments at 8; NYNEX Comments at 10; Ameritech at 8.

[141] *See, e.g.*, COMSAT comments at 3-9; IDB Comments at 3; AMSC Comments at 8.

[142] ICSAR Comments at 2-4; Coast Guard Comments at 1-4.

[143] *See, e.g.*, US Cellular Comments at 5, 7-9; Springwich Comments at 9-10.

[144] AMTA (CA) Comments at 2; Nextel (CA) Comments at 6-7; BMJ&D (CA) Comments at 2-4; AMSC (CA) Comments at 4-9; RCC (CA) Comments at 3-7; Motorola (CA) Reply Comments at 5-6.

[145] RCA (CA) Comments at 2-4.

reachable by terrestrial cellular phones.[146] KSI urges that all CMRS providers, including providers of data messaging services for two-way pagers and personal digital assistants, should be subject to E911 requirements because the Commission would have difficulty in imposing E911 obligations on these companies in the future.[147] Both KSI and TX-ACSEC support requiring E911 obligations for rural carriers.[148]

b. Discussion

80. No party has objected to the applicability of E911 to cellular and broadband PCS carriers. We believe that customers of these public telephone services clearly expect access to 911 and E911, especially because many of them purchase cellular telephones and are likely to purchase broadband PCS telephones primarily for security. As stated above, 62 percent of cellular users cited safety and security as their main reason for purchasing a mobile phone.[149] Therefore, we affirm our tentative conclusion that such commercial voice telephone services should be subject to the requirements set forth in this Order.

81. In addition, we conclude that certain specialized mobile radio (SMR) providers should be subject to the E911 requirements and schedule imposed on cellular and broadband PCS because these carriers may have significant potential to offer near-term direct competition to cellular and broadband PCS carriers.[150] These SMR providers include two classes of SMR licensees. First, E911 requirements will extend to 800 MHz and 900 MHz SMR licensees that hold geographic area licenses. Second, the rule will cover incumbent wide area SMR licensees defined as licensees who have obtained extended implementation authorizations in the 800 MHz or 900 MHz SMR service, either by waiver or under Section 90.629 of the Commission's Rules.[151] Within each of these classes, "covered SMR providers" includes only licensees that offer real-time, two-way switched voice service that is interconnected with the public switched network, either on a stand-alone basis or packaged with other telecommunications services. Because they do not compete substantially with cellular and broadband PCS providers, local SMR licensees, offering mainly dispatch services to

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[146] ICSAR (CA) Comments at 1.

[147] KSI Comments at 15-16; KSI (CA) Comments at 5.

[148] KSI (CA) Reply Comments at 4; TX-ACSEC (CA) Reply Comments at 5-6.

[149] Lockheed Comments at 6.

[150] *See* Applications of Dial Page, Inc., File Nos. 907075-907086 *et al.*, Order, DA 95-2379, paras. 20-29 (released Nov. 22, 1995).

[151] 47 C.F.R. § 90.629.

specialized customers in a more localized, non-cellular system configuration, as well as licensees offering only data, one-way, or stored voice services on an interconnected basis, would not be governed by these E911 requirements. While some traditional SMRs are treated as CMRS because they are interconnected to the public switched network, we do not intend to require them to implement E911. We find that costs of implementing E911 for local SMRs would outweigh the benefits and, as AMTA argues, imposing this obligation on them may give them the incentive to eliminate their interconnection, which would not be in the public interest.[152] Of course, any SMR provider that is not interconnected to the public switched network or does not offer two way voice service would not be subject to E911 requirements.

82. At this time, we believe that 220 MHz licensees operating on 5 kHz channels are likely to provide more traditional dispatch services, although they may be interconnected to the public switched network. Therefore, we will not require 220 MHz licensees to provide E911. We note, however, that the 220 MHz service is in its infancy and still evolving.[153] In the future if this service develops into a mobile telephone service like cellular or broadband PCS, we may revisit this decision. Similarly, it is not certain how multilateration Location and Monitoring Service (LMS)[154] will develop, and therefore it is premature to require such licensees to provide E911 at this time. In addition, we do not believe that it is appropriate to require other two way voice services, such as Air-to-Ground (Part 22, Subpart M) or Public Coast Stations (Part 80, Subpart J). These services are provided for passengers and crews of airplanes and ocean vessels. We find that passengers and crews do not rely on ground-based rescue operations. Instead, passengers and crews of airplanes rely on other radio communications channels, and passengers and crews of ships rely on internationally approved GMDSS.[155] Further, we do not find that there is a public safety need for E911 on two way,

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[152] AMTA Comments at 4-7.

[153] *See* Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services, Amendment of Part 90 of the Commission's Rules To Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band, and Amendment of Parts 2 and 90 of the Commission's Rules to Provide for the Use of 200 Channels Outside the Designated Filing Areas in the 896-901 MHz and 935-940 MHz Band Allotted to the Specialized Mobile Radio Pool, GN Docket No. 93-252, PR Docket Nos. 93-144 and 89-553, Third Report and Order, 9 FCC Rcd 7988, 8055 (1995).

[154] *See* Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, PR Docket No. 93-61, Report and Order, 10 FCC Rcd 4695 (1995). We note that one of the issues on reconsideration of this decision is whether multilateration LMS is CMRS.

[155] *See, e.g.*, COMSAT Comments at 4; COMSAT Reply Comments at 2; IDB Comments at 2.

non-voice services. There has been insufficient comment in the record to support a deviation from our original intention to limit the E911 requirements to real time voice services.

83. In general, we believe that the public interest will ordinarily require that all CMRS real time two-way voice communications services provide reasonable and effective access to emergency services. For the present, however, we recognize that adding specific regulatory requirements to MSS may impede the development of the service in ways that might reduce its ability to meet public safety needs. For example, coordination with international standards bodies will be necessary for international calls, and the current state of technology requires more obstacles to be overcome in the case of MSS carriers than for terrestrial carriers. Thus, while we expect that CMRS voice MSS will eventually be required to provide appropriate access to emergency services, we do not adopt schedules or other requirements for them here. The carriers and other interested parties are urged to develop emergency access systems as soon as is feasible to speed eventual implementation of effective emergency access and to minimize the costs of re-engineering facilities.

84. RCA and individual rural cellular providers contend that providing ALI in some rural areas may not be technologically and economically feasible.[156] The Consensus Agreement suggests that some rural or thinly-populated areas may have system configurations which, without augmentation at special expense, would not be able to deliver ALI accuracy comparable to that which we are requiring.[157] The parties to the Agreement state that they agree to work on this in good faith as an implementation issue which need not delay adoption of the general rule.[158] As stated above, we have found E911 service to be in the public interest. We agree that there may be exceptional circumstances where deployment of E911 may not be technically or economically feasible within the five-year general deadline. We believe that these cases can be dealt with through individual waivers. In cases where the cost recovery mechanisms for E911 service uniquely disadvantage a particular carrier, we will also consider waiver requests. We agree with the parties to the Consensus Agreement that this need not delay adoption of the general rule and encourage their efforts to develop recommended approaches to resolving these implementation issues as they are more precisely identified. Moreover, to the extent that, in any rural area, no PSAP Administrator has informed the carrier that the PSAP is capable of receiving and utilizing the data elements associated with the service, the rural carrier will not be obligated to provide E911.

3. Cost Recovery

[156] RCA (CA) Comments at 3-5; US Cellular Comments at 5; 7-9; Springwich Comments at 9-10.

[157] Consensus Agreement at 3 n. 8.

[158] *Id.* at 3.

EXHIBIT "2"

Protection One®
MOBILE SERVICES GROUP

NEWS RELEASE

FOR IMMEDIATE RELEASE
January 11, 1999

CONTACT: Gary Wallace
Protection One Mobile Services
972-916-6230

PROTECTION ONE® MOBILE SERVICES, GARMIN® LAUNCH WIRELESS PHONE WITH GPS LOCATION-SPECIFIC SERVICES

"First Assist" Can Guide Emergency Response to Location of Caller's Handset

DALLAS – Protection One® Mobile Services and GARMIN® International announced today the introduction of the first portable, wireless phone that includes a navigational screen on the handset and a button that directly links to Response Specialists who can identify the location of the caller who is in distress or simply needs directions.

The GARMIN® NavTalk™ wireless unit will be offered through GARMIN's existing retail distribution channels with the option for the customer to purchase Protection One Mobile's *First Assist*™ subscription-based response services.

With the simple push of the clearly delineated "red 9" key on NavTalk, GPS satellite technology and cellular telecommunications are integrated into a simultaneous transmission of the caller's voice and location to specially trained Response Specialists who are always on duty at Protection One Mobile's *First Assist* Response Center near Dallas. The Response Specialist who receives the call can match the coordinates of the caller's location to Protection One Mobile's proprietary PSAP database and route the emergency call to the correct emergency response agency in the local vicinity. The Response Specialist cannot only help guide emergency responders to the caller's location, but can maintain direct voice contact with the caller until help arrives. The Response Specialist can also contact other people the caller wants notified in an emergency situation.

"This is a product that bundles the peace of mind of having an on-body security system with the convenience of a wireless phone," said Steve Millstein, president of Protection One Mobile Services Group. "With the *First Assist* services, you are safer knowing that if you get lost, or need help, assistance is just a touch away."

-more-

EXHIBIT "3"

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Integrated Data Communications & SCC Communications Corp. Announce Successful Trial Of Phase II Enhanced 9-1-1 Technology In Seattle

For Immediate Release: February 8, 1999

SEATTLE, WASHINGTON -- Integrated Data Communications, Inc. (IDC) and SCC Communications Corp. (NASDAQ: SCCX) today announced the successful trial of Phase II

E9-1-1 in Seattle using Global Positioning System (GPS) equipped cellular phones. IDC's GPS technology quickly identifies the location of a wireless 9-1-1 call using the latitude and longitude of a caller's signal, allowing the E9-1-1 system to route the call to the proper public safety agency and for the agency to quickly map the location of the emergency caller.

"IDC's technology, in cooperation with SCC's high-quality database, has resulted in an extremely accurate and effective tool for public safety and commercial applications," said Dan Allen, IDC's president and CEO. "The ability to route calls to the most appropriate call center, based on the mobile caller's location, will significantly reduce response times and increase efficiency."

The trial involved vehicles traveling down Interstate 5, which runs through the heart of Seattle, and placing wireless 9-1-1 calls. Not only did the calls go to the right Public Safety Agency, the caller's location was accurately displayed on the maps of the call-takers. Even when calling from a moving vehicle, location was determined with accuracy of as close as to 40 feet. This accurate location capability allows call routing decisions to differentiate between Washington State Patrol calls made from the Interstate and Seattle Police Department calls placed from streets adjacent to the freeway.

How the Trial Worked

Calls were placed through a standard cellular network and switched to US West's 9-1-1 selective router, where equipment manufactured by Proctor & Associates in Redmond, Washington processed the call and collected the latitude and longitude data from the IDC technology-equipped phone. The data was then sent to SCC Communications Corp.'s E9-1-1 database routing service, which determined the correct Public Safety Agency for that location. SCC returned the correct routing instructions to the Proctor equipment and the call and the routing information was processed by the US West 9-1-1 router. This happened within normal call set-up intervals. No modifications were needed to the 9-1-1 router or wireless carrier's system. The demonstration showed that with only small additions to the existing 9-1-1 system, cellular calls with location information can be processed quickly and delivered to the correct Public Safety agency.

"SCC is dedicated to using information and communications to help protect people and property," said SCC Chief Operating Officer John Sims. "Working with innovative location determination companies like IDC will help ensure that when wireless phones are used to dial 9-1-1, they'll be effective."

What Does Wireless 9-1-1 Mean?

In many parts of the nation today, when a person uses a regular -- or wired -- phone to call 9-1-1, the

emergency dispatcher sees the caller's name, number and address on the computer screen, which helps emergency personnel respond faster. However, when the 9-1-1 call is placed from a wireless phone, the emergency dispatcher does not receive that valuable information along with the voice call.

Wireless E9-1-1 will provide emergency communications personnel with the phone number of the wireless handset, and information about the cell site or "sector" where the caller is located. The more precise information aids the dispatcher in deploying emergency services.

"The Federal Communications Commission (FCC) has mandated that, by October 2001, location be determined for wireless handsets within 125 meters, 67% of the time. Our trial proved that this mandate can be met and exceeded today, with the technologies of SCC and IDC," comments IDC's Allen.

About IDC

A developer of handset-based wireless location technology, Integrated Data Communications (IDC) is a privately-held company based in the Seattle, Washington area. IDC entered the location technology market in 1997 with a cost-effective and proprietary system to locate cell phones using commercially available Global Positioning Satellite (GPS) information. For more information about IDC, please go to the company Website at

http://www.idc-seattle.com.

About SCC Communications

SCC Communications Corp., (NASDAQ: SCCX) is the leading provider of 9-1-1 operations support systems (OSS) services to incumbent local exchange carriers (ILECS), competitive local exchange carriers (CLECS) and wireless carriers in the United States. Based in Boulder, Colo., SCC has redefined the U.S. market for 9-1-1 OSS by creating the first and largest 9-1-1 service bureau, the SCC National Data Services Center (NDSC), with more than 75 million subscriber data records under management throughout North America. SCC also licenses its 9-1-1 OSS software to carriers that wish to manage the delivery of 9-1-1 data management services in-house. For more information about SCC Communications, please go to the company's Website http://www.scc911.com.

# # #

EXHIBIT "4"

Hughes Network Systems Selects Motorola to Provide Advanced GPS Chipset for Satellite Phones; Combined Design Effort Sets New Standard for Fully Integrated GPS Chipsets

October 20, 1998

AUSTIN, Texas--(BUSINESS WIRE) via NewsEdge Corporation -- Hughes Network Systems, a division of General Motors' Hughes Electronics, has awarded Motorola (NYSE:MOT) a contract for providing Global Positioning System (GPS) chipsets to be utilized in the company's new satellite phones which offer personal location/communication-based features in small, next-generation portable products.

This allows designs teams, for the first time, to incorporate this next generation of GPS capabilities into phone handsets, an option that previously could not be utilized due to cost and size limitations.

The highly integrated chipset selected by Hughes incorporates the recently introduced MRFIC1504 module and a new GPS microcontroller designed for engineers requiring navigation or remote tracking capability in their system design.

The new GPS microcontroller is based on Motorola's ultra low-power, low-cost embedded microprocessor architecture that can vastly improve and shorten development cycles for low-voltage GPS-enabled electronics. Additional details regarding the GPS microcontroller will be made in conjunction with the Embedded Systems Conference on Nov. 1-5, 1998, in San Jose, Calif.

"Combining the technologies of Motorola and Hughes enables us to bring an advanced and competitively priced product to market," said Graham Avis, assistant vice president and manager for Geo-Mobile Satellite User

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Wireless Has Bright Future

EXHIBIT "5"

A-LIST

Kill Your Computer

Reluctant technologist Donald A. Norman, author of *The Design of Everyday Things* and *Things That Make Us Smart*, has a way of elevating himself above the chaos and the bustle of high tech. It's a vantage from which he points out our follies and glimpses the road ahead. His latest release is a combative but informative rant against an easy opponent: those damned confusing computers.

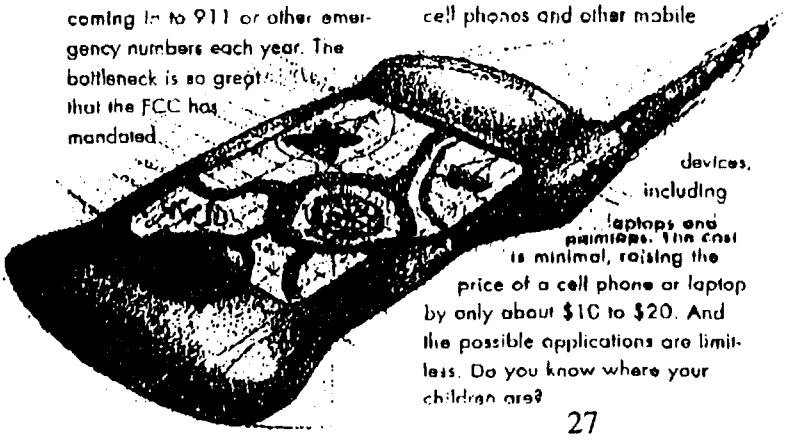
The Invisible Computer ($25; MIT Press, Oct. '98) is a savvy analysis of the computer business as it limps toward maturity. It's also a love letter to smart information appliances, which Norman argues will save us from computing chaos and clunky all-purpose machines. Norman is at his best when chronicling the difficult transition that PC-makers are finding themselves in today: out of an era when technological whiz-bang is paramount, into an age when consumers just want usefulness. His chapters on reinventing product development are compelling, and will serve marketing teams best out of his readership.

But Norman's cranky rants against the personal computer are too frequently built on hyperbolic assumptions, and his forecast for a blissful product universe relies on too many vague metaphors: a Swiss Army knife, a drawer full of kitchen gadgets, wooly widgets with wing nuts.

Interestingly, since leaving Apple Computer's underfunded R&D labs, Norman has taken a day job as a developer of smart appliances for Hewlett-Packard. Maybe he'll build a clever radio that can tell him the weather and where his kids are, or he'll concoct a brainy camera th image-related functions like scanning and rasterizing. he'll invent a smart typing appliance that lets people v and share documents and do their taxes and....No wai already invented that.

LOCATION, LOCATION, LOCATION

You're visiting Boston from Seattle and witness a crime. So you reach for your trusty, always-with-you cell phone, dial 911, and get routed to...Seattle. Traditional emergency-response systems, which are built around fixed phone locations, have gone haywire with the estimated 30 million wireless phone calls coming in to 911 or other emergency numbers each year. The bottleneck is so great that the FCC has mandated that the point of origin of all cell phone calls be locatable by October 2001. Problem solved: SiRF Technology, based in Santa Clara, Calif., has developed a tiny Global Positioning System (GPS) module, called SiRFstar I/LX, that can determine your phone's location. SiRF has made deals with Nokia and Ericsson and will soon be putting the locating device in cell phones and other mobile devices, including laptops and palmtops. The cost is minimal, raising the price of a cell phone or laptop by only about $10 to $20. And the possible applications are limitless. Do you know where your children are?



Rome in a Day

In Virgil's *Aeneid*, the hero Aeneas encounters war and later culls some of their best ideas to found Rome. Many of the myriad news and informatio out on the Web today could easily work with the wari metaphor, but where is the modern-day Aeneas to c efficient empire of easily accessible and organized in from the chaos?

One sets sail this fall. Aetheid's Internet Research As gives subscribers an easily managed XML-based (see "XM Up Search Clutter," Premiere, p.110) carting of resou options, and information trackers. The IRA informa izer is targeted at the high-tech and financial service: though versions for health-care management and othe will launch later.

The IRA functions much like Lexis-Nexis (or the type in a keyword, then select with incredible specificity and sources they want combed (Hardware manufact filings, and the trade press are among the many optic streamlining and organizing the business information Aetheid provides each subscriber with server space fo searches. If a search for "DVD" among News.com, Son site, and a Forrester Research report gave particularly instance, the whole search could be saved and called up or reviewing.

Whether you build the next Rome is up to you, but pieces together has never been easier.

EXHIBIT "6"

BOEING

CSEL
Combat Survivor Evader Locator

EXHIBIT "7"

Answering Point. The first of such systems was developed by Motorola as the Motorola RESCU System, followed by systems such as the CarCop system, being developed for ADT, the BART system, which utilizes the Motorola GPS receiver, Highway Master and ATX. These systems modem the information relating to the location of the vehicle, its tag number, the type of problem, and other information directly to a third-party dispatch operation. Upon receipt of an emergency call, the third-party dispatch operation telephones the nearest PSAP given the location and provides the information to the backline of the PSAP. Currently, according to APCO, the Association of Public Safety Communications Officers, there are 7,000 PSAPs in the United States. According to NENA, the National Emergency Number Association, there are 4,800 PSAPs. One problem with the above solutions is routing of the 911 call based on detected location.

As a result, contacting the appropriate PSAP is a problem. The routing to the appropriate PSAP, while on the local level is currently handled via local politics, is handled by the intermediate dispatch operation type system by calling the PSAP which is closest to the position detected by the on-board GPS. While in many cases this works satisfactorily, misrouting of calls has been reported, especially where the location is near a state line, county line or city line. Local preferences as to the routing are in general handled by the state police or telecommunications unit of the particular state, with calls being routed from a primary PSAP to a regional PSAP based on a one-touch transfer operation from the central or primary PSAP. It is thus the local preference which governs to which entity the call is transferred, rather than the particular location of the E-911 caller.

-

GPS Solutions, Automatic Feed Direct to PSAP

The first GPS-based solution which routed the calls to the appropriate PSAP involved NAVSYS and the Tigit system, in which raw GPS data is modemed to a centralized processing point within the state which determines the location of the E-911 caller and automatically routes the call in accordance with locally developed rules or principles. The Tigit system requires a GPS front end mounted on the handheld cellular phone and requires modeming of the information for processing to a full-up GPS receiver at the recipient site. This system requires that each state have infrastructure to accommodate the incoming calls and calculate positions of the E-911 callers as well as routing based on the location of the call. The state of Colorado has implemented such a system, which has been in use for approximately two years at an initial cost of $5 million for the statewide infrastructure.

Most recently, a system which provides automatic direct feed to the PSAP is the SnapTrack system, which improves upon the Tigit system by providing infrastructure at the recipient site to more accurately locate the stricken individual by providing a differential correction due to the close location of the cell site to the transmitting source, that being the 911 caller. Correlators within the GPS receiver may be preset due to pre-knowledge of location, ephermis, almanac, and time of day so that the correlators will more quickly lock up to the GPS signal. The GPS receiver may either be at the recipient site, or the correlators on the handset may be preset through communication between the recipient site and the handset. It is reported by SnapTrack that the SnapTrack system permits location within buildings and even within desk drawers within buildings, with the system having been demonstrated at the offices of SnapTrack.

-

FoneFinder

Presently, the only handset solution in which the GPS is carried by the cell phone is provided by Tendler Cellular and is called the FoneFinder.

The FoneFinder unit operates by receiving satellite signals at the handset, calculating position at the handset and providing these signals to a speech synthesizer which modulates the cell phone transmitter to verbally report position in English. The salient feature of this system is that there is no additional infrastructure required at the cell site or at the PSAPs to be able to obtain location information. Additionally, the FoneFinder system also reports the mobile identification number, or MIN (e.g. cell phone number), at the same time it reports the latitude and longitude. Also verbally reported is the time since last fix, such that if the phone is activated in a building, the phone remembers its last fix and reports that along with how long ago the fix was obtained so that EMTs can ascertain the validity of the incoming data.

-

The advantages of such a system are as follows:

1) FoneFinder meets the ANI and ALI requirements now.

2) The transmission of the latitude and longitude goes directly to the PSAP upon dialing of 911 by the FoneFinder phone.

3) This dialing is done automatically with the press of a protected 911 button.

4) The information is sent along the voice channel such that there is no additional infrastructure required along the transmission path or at the PSAP, where the information is taken down by pencil and paper and is placed on audiotape for future reference.

5) Inexpensive electronic maps may be provided at the PSAP such as the Delorme Street Atlas which is addressable by latitude and longitude at a cost of $40 for the entire United States. A specialized version of the Street Atlas is available from Delorme as MapExpert for approximately $300 per CD-ROM.

6) In addition to there being no additional infrastructure with the FoneFinder system due to its verbal enunciation format, the system is, as with all GPS systems, universal, and

7) is instantly deployable with the provision of the phone. This means that there are no changes to cell site switches and no additional infrastructure in order to be able to obtain the information at the PSAP.

8) One large advantage with respect to all GPS systems, as opposed to triangulation, is that there is no "Big Brother is watching you" scenario. People are found only when they want to be found and that is with the depression of the 911 button.

9) With respect to the FoneFinder system, the cost of the phone and the additional GPS/antenna/PCB is on the order of $400, which makes the entire system relatively inexpensive in its entirety.

Revenue Streams

There are a number of revenue streams possible with the FoneFinder phone to not only offset the cost of the phone, but also to provide enough significant revenue to offset the costs of infrastructure solutions should they be desirable for any given carrier. One cost-recovery mechanism is a $4 per month charge for a three-year no-cut contract. This provides $144 which is the approximate cost of the additional FoneFinder apparatus necessary for the phone. The Strategis Group estimates that the public would pay an additional $4 per month for the location of the 911 call to be identified to the rescuing entity.

The second revenue stream associated with the FoneFinder phone has to do with a National Concierge Service function, in which upon depression of a separate button, a dispatch agency is called to be able to answer those types of questions which a concierge would normally answer. Restaurants, directions, and all manner of assistance are contemplated to be part of this service. It has been estimated that a $2.00 per month revenue stream back to the carriers can be associated with such a service, or $0.25 per minute, based on either a $7.00 per month charge or a $1.50 per minute charge.

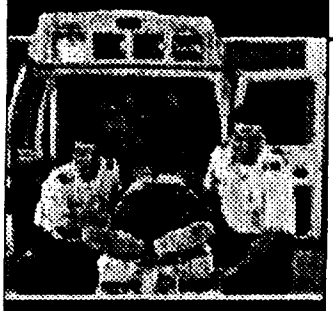
A third revenue stream has to do with a 911 Back-up Service which is provided at the user's option, such that when a call is terminated to the PSAP, an identical call goes to a dispatch agency, which inquires as to whether or not the individual has been helped. If not, the dispatch service calls the PSAP on its backline to make sure that ambulances, police, EMTs, etc. are on the way. The revenue stream back to the carrier to offset the cost of the handset is approximately $20 per call out of a total $50 one-time charge for such a service.

Summary

FoneFinder provides for ANI and ALI now. Moreover, the above revenue streams permit the FoneFinder units to be provided "free" to the public and permit swap-outs of the embedded base. Regardless, currently the embedded base is swapped out every three years, and with there being no significant embedded base for PCS carriers, there is a revenue stream associated with FoneFinder phones which can be used for other purposes. Thus, with the utilization of the FoneFinder phone, there is a diversion of revenue possible to fund the so-called "infrastructure solution." As a result the FoneFinder phone can be utilized along with triangulation to provide a "belt and suspenders" solution. It is recognized that neither the GPS solution nor the infrastructure solution results in absolute certainty of rescue. In point of fact, both types of systems have inherent limitations. However, the above mentioned "belt and suspenders" approach with signaling at two different levels can increase reliability of rescue.

Top of Page | FoneFinder Home

EXHIBIT "8"



HOME
TECHNOLOGY AT WORK
E9-1-1 CHALLENGE
PRIVACY PROTECTION
SNAPTRACK ADVANTAGE
SNAPTRACK IN ACTION
ABOUT SNAPTRACK

SnapTrack

THE E9-1-1 CHALLENGE

Exceeding the Need

Two-thirds of wireless phones are purchased for safety and security reasons, but wireless phones don't have the emergency location capability of wireline phones. Wireless phones deliver 9-1-1 calls to a public safety answer point (PSAP) but provide little additional information. The FCC has issued a mandate requiring wireless carriers to provide the location of 9-1-1 calls to PSAPs by October 1, 2001. The mandate says this location information must be accurate to within 125 meters at least 67 percent of the time. The SnapTrack system far exceeds these requirements.

Questions or comments? E-mail us, or fill out this simple form.

EXHIBIT "9"

HEADSUP **Your Story Request** ORDER NO. 0181838

COMPANIES JUMPING AT GPS-WIRELESS MARKET OPPORTUNITIES FOR PERSONAL LOCATION, E-911

GLOBAL POSITIONING & NAVIGATION NEWS via NewsEdge Corporation -- NASHVILLE, Tenn.-No longer limited to large domestic and international semiconductor companies, other players are looking at GPS-wireless integration products for consumer market entry.

The Goeken Group plans to integrate Navsys Corp.'s Tidget GPS receiver into its handheld personal locator in a large market rollout, said Chairman and CEO Jack Goeken at the Institute of Navigation's GPS-98 conference here.

"The applications and opportunities of GPS are growing. Our Personal Guardian product combines a GPS receiver and cellular capability with a unit the size of a cigarette pack," he said.

Goeken, a founder of MCI [WCOM], Airphone and the FTD Mercury network, said the new unit will hit the market in the first quarter of next year after final testing and equipment selection. Ameritech [AIT] is testing the unit in a five-state area. "It has done extremely well in testing-we do not anticipate any problems," Goeken said.

The unit is ideal for a person who is alone because it has a simple one-button operation that can be activated in an emergency, Goeken said. In addition to individual consumers, The Goeken Group plans to market the units to security companies that monitor homes, said Jerry Oldani, vice president of systems and technology.

A similar Navsys product, which is marketed under its LocatorNet subsidiary, uses a Sierra Wireless radio modem, analog cellular phone system and cellular digital packet data (CDPD) in a unit it calls the GPS Phone. The LocatorNet Processing Center takes raw GPS data from the GPS Phone and converts it into location.

The company also is marketing a "smart" video camera that includes a GPS receiver, inertial sensors and a digital video camera for precise mapping and targeting through a Defense Advanced Research Program Agency (DARPA) project. "All a user has to do is point and click to receive a video data image of [a target]. GPS data is part of the images," said Sandy Brown, Navsys MIS manager.

As GPNN reported last month (GPNN, Sept. 9, pp. 4-5), The Goeken Group is offering medical information as part of the General Motors OnStar program. The system allows emergency workers to have access to a subscriber's medical information. The service costs $11.95 a month.

..First Look At Audiovox/Tendler GPS CellPhone

Audiovox and Tendler Cellular plan to incorporate GPS into a cellular phone. Although a definitive GPS vendor has not been selected, the companies have worked with Micropulse on the GPS- cellular antenna.

In other GPS-wireless news, SnapTrack said that 16 wireless firms are proceeding with prototype integrated handset development for the commercial market. Market trials for SnapTrack-enabled phones are scheduled to begin in the third quarter of 1999, with widespread availability planned by the end of that year, the company said.

Carrier members of the SnapTrack CDMA Test Group (STCTG) include AirTouch Communications [ATI], Ameritech Cellular, Bell Mobility, GTE Wireless [GTE], PrimeCo Personal Communications, Sprint PCS [FON], and U S West Wireless [USW]. Participating manufacturers include Denso, Fujitsu, Hyundai, LGIC, Motorola [MOT], Nokia [NOK/A], Samsung, Texas Instruments and VLSI.

The STCTG focuses on integrating code division multiple access (CDMA) transmission technology with the SnapTrack system. From a wireless network, the SnapTrack system captures information such as approximate handset location, timing, and frequency to use for precise location determination.

GPS integration into wireless phones is such a hot topic now that Tom Engibous, president, chairman and CEO of Texas Instruments, said that in "two years, every digital cellular phone sold will have a [GPS receiver]."

Last month, SnapTrack signed a multi-million-dollar licensing agreement with NTT DoCoMo, Japan's largest wireless carrier. NTT DoCoMo said it would be rolling out a GPS-wireless service next spring in Japan.

[10-07-98 at 16:00 EDT, Copyright 1998, Phillips Publishing, Inc., File: d1007400.9od]

THANK YOU FOR YOUR ORDER. FOR QUESTIONS, CALL CLIENT SERVICES AT (781) 273-6020

CERTIFICATION

The undersigned certifies that, to the best knowledge and belief of the undersigned, this petition includes all information and views on which the petition relies and that it includes representative data and information known to the Petitioner which are unfavorable to the Petition.

ZOLTAR SATELLITE ALARM SYSTEMS

DATED: March 5, 1999

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